

Case Study: Garlock PS-SEAL® Delivers 90x+ Longer Service Life in Pharmaceutical Milling



Garlock PS-SEAL



Competitor Seal

INDUSTRY

Pharmaceutical Manufacturing - Conical Milling Equipment

BACKGROUND

A pharmaceutical manufacturer specializing in the development and production of high-complexity drugs, including biologics and biosimilars, required a reliable sealing solution for the agitator shaft of a conical granulator mill. The equipment operated at 500 rpm under ambient temperature with no applied pressure while processing dry, granulated pharmaceutical powder. Due to the abrasive nature of the process media and sanitary industry requirements, dependable seal performance was essential to maintaining reliable operation.

CHALLENGES FACED

The highly abrasive pharmaceutical powder caused rapid wear of the existing FKM lip seals, causing premature seal failures after 48 hours. Replacing seals every two days increased maintenance requirements and reduced equipment reliability. The customer needed a sanitary sealing solution that could withstand the abrasive process media while delivering a significantly longer service life.

OPERATING CONDITIONS

Size: Custom

Temperature: Ambient

Application: Agitator shaft sealing on a pharmaceutical conical mill

Media: Abrasive pharmaceutical powder

Speed: 500 RPM

SOLUTION AND BENEFITS

Following a detailed technical analysis, Garlock and our trusted distribution partner recommended the PS-SEAL® with FDA compliant GYLON® Style 3510 lips in a back-to-back configuration. The PTFE-based sealing lips were selected for their exceptional resistance to abrasive wear and their ability to operate reliably in dry-running applications where conventional elastomeric lip seals often fail. Over more than six months of operation, PS-SEAL eliminated leakage, premature wear, and unplanned seal replacements that had previously occurred every 48 hours. By extending service life from days to months, the solution significantly reduced maintenance frequency, minimized production interruptions, lowered replacement seal consumption, and improved overall equipment reliability. This successful performance led the customer to standardize the PS-SEAL across similar equipment.

For more information, please visit:

<http://www.garlock.com>

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